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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,765	11/17/2006	Roger Stanley Bushby	081193-000000US	3893

20350 7590 10/20/2010  
TOWNSEND AND TOWNSEND AND CREW, LLP  
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SAN FRANCISCO, CA 94111-3834

EXAMINER
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LIN, KUANG Y

ART UNIT	PAPER NUMBER
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1735

MAIL DATE	DELIVERY MODE
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10/20/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,765	<b>Applicant(s)</b> BUSHBY, ROGER STANLEY	
	<b>Examiner</b> Kuang Y. Lin	<b>Art Unit</b> 1735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19,21-24 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19,21-24 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1735

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 19, 21-24, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,573,519 to Donomoto et al.

Donomoto et al. show a method for forming a metal matrix composite article. The method comprises a series of steps: a first step wherein a reinforcing material is set in a retaining tool 3 mainly composed of a water soluble salt with a high melting point; a second step wherein the reinforcing material set in the retaining tool is heated above certain temperature and then installed in a mold 5 which has cavity for receiving the retaining tool 3; a third step wherein molten matrix metal is contacted with and impregnated into the reinforcing material in the mold 5 and then solidified to form a metal base composite with the reinforcing material embedded therein; and a fourth step wherein the product (retaining tool 3 plus the composite article) is removed from the casting mold 5 with a knock-out plunger 6, and product is dipped in water to dissolve the retaining tool 3 away to obtain the metal matrix composite article (col. 2, lines 39-53 and col. 4, lines 21-27). The retaining tool 3 in which a reinforcing material is installed is subjected to heating, to prevent insufficient impregnation of the molten matrix metal into the pores of the preform of a reinforcing material due to premature solidification of the metal. Therefore, it is preferable to heat the retaining tool above the melting

Art Unit: 1735

point of the matrix metal (col. 3, lines 12-18). The reinforcing material may be powder, flake or fiber including carbon fibers, silicon nitride fibers or ceramic whiskers (col. 3, lines 6-8). In one example, the molten aluminum alloy is preheated at 750 degree C. was quickly poured in the mold and a pressure of 1000 kg/cm<sup>2</sup> (980 bar) was applied by use of upper mold 51 (which is considered as a compaction piston) projected into the mold cavity. The interior of the casting mold 5 had been kept at 300 degree C. until the retainer 3 was installed in the mold (col. 4, lines 10-19). Thus, Donomoto et al. substantially show the invention as claimed except that they do not show to provide a third part corresponding to the first part for repeating the casting steps as claimed in last step of claim 19. However, Donomoto et al. do disclose that the water soluble salt used for the retainer can be recycled for reuse (col. 4, lines 35-37 and col. 5, lines 38-39). Thus, it would have been obvious to provide a plurality of retainers for a close loop die casting operation by continuously recycling the salt and then use the recycled salt to make new retainers for sequentially casting the composite articles. With respect to claim 31, since it is conventional to use split die in a casting process as evident by JP 62-72,756 submitted by applicant, it would have been obvious to form the retaining tool 3 (inside mold) and outside mold 5 of Donomoto et al. from split part and removing the retaining tool 3 (inside mold) from the outside mold 5 with an appropriate manner in view of the conventional practice.

Art Unit: 1735

3. Applicant's arguments filed September 23, 2010 have been fully considered but they are not persuasive.

a. Applicant in page 6, 1<sup>st</sup> and 2<sup>nd</sup> para. of the response stated that Donomoto fails to disclose that the retainer is cooled independently of casting mold before removing the solidified component from the retainer. However, Donomoto does show to remove the retainer after the solidification of alloy (col. 4, lines 22-24 and col. 4, line 67 through col. 5, line 1). Thus, Donomoto does show that the retainer is cooled independently of casting mold before removing the solidified component from the retainer.

b. Applicant in page 6, last para. of the response stated that Donomoto fails to teach the reusing of the casting mold with a new retainer in order to achieve fast cycling times. As stated above, however, that Donomoto does teach that the water soluble salt used for the retainer can be recycled for reuse (col. 4, lines 35-37 and col. 5, lines 38-39). It would have been obvious to provide a plurality of retainers for a close loop die casting operation by continuously recycling the salt and then used the recycled salt to make new retainers for sequentially casting the composite articles.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 1735

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica L. Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuang Y. Lin/  
Primary Examiner, Art Unit 1735

10-19-10